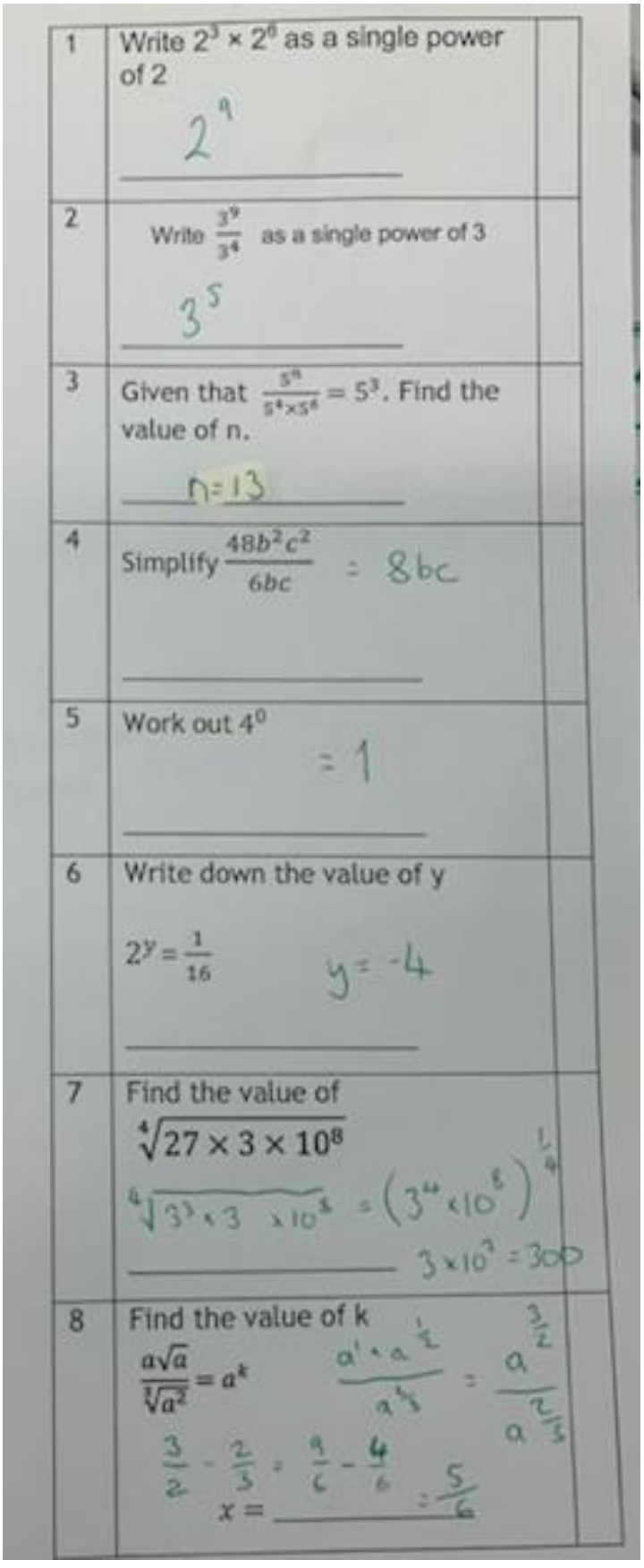
QQQ – GCSE Surds - ANSWERS

1	Simplify $\sqrt{\frac{4}{9}}$ $= \mathbf{\frac{2}{3}}$	
2	Simplify $\sqrt{45}$ $= \mathbf{3\sqrt{5}}$	
3	Express $(2+\sqrt{2})(5+\sqrt{8})$ in the form $a+b\sqrt{2}$, where a and b are integers. $= \mathbf{14+9\sqrt{2}}$	
4	Rationalise the denominator of $\frac{15}{\sqrt{3}}$ $\mathbf{5\sqrt{3}}$	
5	Simplify $\sqrt{9x^4}$ $= \mathbf{3x^2}$	
6	Simplify $\frac{1}{\sqrt{2}}+\frac{\sqrt{2}}{3}$ $= \mathbf{\frac{5\sqrt{2}}{6}}$	
7	Express $(2-\sqrt{3})(3+\sqrt{27})$ in the form $a+b\sqrt{3}$, where a and b are integers. $-3+3\sqrt{3}$	
8	Simplify $\sqrt{2}+\sqrt{8}+\sqrt{32}$. $= \mathbf{7\sqrt{2}}$	



1	Write $2^3 \times 2^6$ as a single power of 2 2^9	
2	Write $\frac{3^9}{3^4}$ as a single power of 3 3^5	
3	Given that $\frac{5^n}{5^4 \times 5^6} = 5^3$. Find the value of n. $n=13$	
4	Simplify $\frac{48b^2c^2}{6bc}$ $= 8bc$	
5	Work out 4^0 $=1$	
6	Write down the value of y $2^y = \frac{1}{16}$ $y=-4$	
7	Find the value of $\sqrt[4]{27 \times 3 \times 10^8}$ $\sqrt[4]{3^3 \times 3 \times 10^8} = (3^4 \times 10^8)^{1/4}$ $3 \times 10^2 = 300$	
8	Find the value of k $\frac{a\sqrt{a}}{\sqrt[3]{a^2}} = a^k$ $\frac{a^1 \times a^{\frac{1}{2}}}{a^{\frac{2}{3}}} = a^{\frac{3}{2}}$ $\frac{3}{2} - \frac{2}{3} = \frac{9}{6} - \frac{4}{6} = \frac{5}{6}$ $x =$	